

A NEW SUBSPECIES OF GREVILLEA BRACHSTYLIS (PROTEACEAE) FROM THE WHICHER RANGE

By GREG KEIGHERY

Department of Environment and Conservation,
Western Australian Wildlife Research Centre
P.O. Box 51, Wanneroo, Western Australia, 6065.

ABSTRACT

Grevillea brachystylis subspecies *grandis* Keighery is described and illustrated. This newly described taxon is a very rare endemic of red-loam soils at the base of the Whicher Range, south-east of Busselton.

INTRODUCTION

Over the past decade the Western Australian Department of Environment and Conservation (previously the Department of Conservation and Land Management) has undertaken intensive floristic and reserve surveys of the Swan Coastal Plain (Gibson *et al.* 1994; Keighery 1999). Currently these surveys are continuing under a new program entitled "Swan Bioplan" and have been extended to include the Darling and Whicher Escarpments of their respective ranges (Keighery *et al.* 2008). This is the fourth paper in a series on the flora and vegetation of the Whicher Range (Keighery *et al.* 2008; Keighery 2008 a&b).

The *Grevillea brachystylis* species complex has been studied by

Keighery (1990) who divided it into two species, one with two subspecies. One species (*G. bronwenae*) is confined to the Blackwood Plateau and the other (*G. brachystylis*) is comprised of two subspecies; *Grevillea brachystylis* subspecies *brachystylis* and subspecies *australis* on the Swan and Scott Coastal Plains respectively.

Continuing studies of the flora of the Whicher Range and escarpment noted that variation within *Grevillea brachystylis* subsp. *brachystylis* is discontinuous in this area and that a third subspecies can be recognized. This new subspecies is confined to the interface between the Whicher Escarpment and the Swan Coastal Plain.

TAXONOMY

This rare form of *Grevillea brachystylis* differs from the type form of *G. brachystylis* in being an erect shrub to 2 metres tall, although normally less. The plant lacks a lignotuber and has only 1–3 stems per plant, which are much more robust than the type form. Flowers, pedicels and leaves are also much larger, in all measurements (Table 1).

Although occurring in the same general location south of Busselton, both forms of *Grevillea brachystylis* are never sympatric being ecologically separated, without a chance to hybridize. The forms differ in habitat, habit and size of floral and vegetative organs; therefore, sub specific rank seems most appropriate for this rare form.

Grevillea brachystylis subsp.
grandis G.J. Keighery subspecies
nov (Figures 1 and 2)

Differt a *Grevillea brachystylis*
ramis erecta, flores larger:
pedicels 6–8 mm longa vs 2–3

mm, folia 102–109 mm longa vs
40–52 mm.

Typus: SSE of Busselton, 28-Aug.-
1985, G.J. Keighery s.n. (Holo:
PERTH 1071904, Iso: CANB).

An erect few branched non
lignotuberos shrub to 2 metres
tall. Branchlets terete, up to 2
metres long, sparsely tomentose.
Leaves 102–110 mm long by 12
mm wide, spreading to ascend-
ing, sessile, simple, linear to
obovate, obtuse, mucronate,
upper surface flat to concave,
granulate, pubescent but soon
glabrous, margins recurved,
lower surface pubescent to
glabrous. Conflorescence de-
flexed, subsessile to pedunculate,
terminal to axillary, 4–7 flowered,
peduncle bracteate, villous, rachis
villous, bracts 4–6 mm long,
imbricate in bud, ovate,
tomentose, caducous at flowering.
Flowers acroscopic, pedicels 6–8
mm long, tomentose to villous,
torus 3–4 mm across, very
oblique, nectary v shaped, entire.
Perianth 11–12 mm long, 4–5 mm
wide, cohering at flowering,

Table 1. Character States of the nominate and new subspecies

Character	subspecies <i>grandis</i>	subspecies <i>brachystylis</i>
FLORAL		
flower limb	11 mm	6 mm
Pedicel	6–8 mm	2–3 mm
pollen presenter	5 mm	2 mm
LEAF		
leaf length	102–109 mm	40–52 mm
leaf width	12 mm	5 mm
Lignotuber	absent	present



Figure 1. Habit of *Grevillea brachystylis* subspecies *grandis*. Type population. Photo by Bronwen Keighery.



Figure 2. Flowers and pods of *Grevillea brachystylis* subsp. *grandis*. Type population. Photos by Bronwen Keighery.

oblong, geniculate from halfway along, dilated ventrally at base, ridged, sparsely tomentose outside, pubescent inside, cohering except along dorsal suture from curve to limb, limb revolute, ovoid with a point, dilated on dorsal side, densely brown, tomentose segments separating at flowering. Pistil 11–15 mm long, stipe 5 mm long, pilose, ovary villous, style stout (ca 1.5 mm wide), pubescent, exposed at curve of perianth at flowering, but not exerted, afterwards straight and scarcely exceeding perianth, style end beaked, pollen presenter red, 5 mm long, lateral, oblong elliptic, concave. Fruit 15–17 mm long, 5–7 mm wide, erect, ovoid, tomentose. Seed 7–9 mm long, elliptic with recurved margins, smooth on both sides, with a terminal eliasome, 3–4 mm long.

Other collections examined. Base of Whicher Scarp, SSE of Busselton, 05-Dec,-1992. G.J. Keighery 13150 (PERTH); Base of Whicher Scarp, SSE of Busselton, 2-May-1997. A. Webb 038; Base of Whicher Scarp, SSE of Busselton, 27-July-2005. J. Liddelow 12; Base of Whicher Scarp, SSE of Busselton, 30-Oct,-2001. M. Soutar 63 (PERTH). Precise locations are not given because of the conservation significance of this subspecies.

Ecology/conservation. This subspecies grows only in Marri (*Corymbia calophylla*) / Jarrah (*Eucalyptus marginata*) or rarely Mountain Marri (*Corymbia haematoxylon*) woodland on brown lateritic clay loams along

the base of the Whicher Range. This corresponds to the Jindong Subsystem of the Abba soils (Tille and Lantzke 1990) of the Swan Coastal Plain, which have almost entirely been cleared for agriculture. Only three populations of this subspecies are known, all occurring on narrow road verges. The subspecies regenerates from seed following fires and is able to cope with considerable disturbance.

Conservation Code. Listed as Critically endangered. Known only from three small roadside populations south-east of Busselton.

Notes. This is an attractive and easily grown member of the complex.

DISCUSSION

This variant of *Grevillea brachystylis* with an erect habit and large flowers could be responsible for the confusion that has been expressed in some flora treatments (Wheeler *et al.* 2002) in differentiating herbarium collections between *Grevillea brachystylis* subsp. *brachystylis* (a Swan Coastal Plain endemic, centred on the Abba system) and *Grevillea bronwenae* (a Blackwood Plateau endemic, centred on the Whicher Scarp, predominately around the headwaters of the Sabina and Abba Rivers with a few outliers). The other subspecies of *Grevillea brachystylis*, subspecies *australis* is a Scott Coastal Plain endemic, has leathery leaves, a densely hairy perianth and a blue style end (see

photos and sketches in Olde and Marriott 1995, page 69 and Keighery 1990).

However, as detailed in Keighery (1990) and Olde and Marriott (1995) living material of both species can be readily differentiated on numerous floral characters, not just size. *Grevillea brachystylis* has a decumbent habit with numerous short stems, with spreading narrow leaves, ovate floral bracts and flowers that are ventrally dilated, geniculate in the upper half with the recurved portion dilated on dorsal side, a broad style with a beaked end (see photos and sketches in Olde and Marriott 1995, page 68 and Keighery 1990). *Grevillea bronwenae* is an erect few branched shrub with triangular floral bracts and flowers that are undilated, a narrow style that is unbeaked and blue (see Olde and Marriott 1995, page 72 and Keighery 1990). The new subspecies has the erect habit of *G. bronwenae* (Figure 1) but the flowers shown in Figure 2, although much larger, are the same shape as normal *G. brachystylis*, not *G. bronwenae*.

ACKNOWLEDGEMENTS

Swan Bioplan, a program established by the Minister of Environment provided funding for aspects of this study.

REFERENCES

GIBSON, N., KEIGHERY, B.J., KEIGHERY, G.J., BURBIDGE, A.H.

and LYONS, M.N. 1994. *A Floristic Survey of the Southern Swan Coastal Plain*. Report for the Australian Heritage Commission by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).

KEIGHERY, G.J. 1990. Taxonomy of the *Grevillea brachystylis* species complex. *Nuytsia* 7: 125–131.

KEIGHERY, G.J. 1999. *Conservation status of the vascular flora of the southern Swan Coastal Plain*. Report for Environment Australia. Department of Conservation and Land Management, Perth.

KEIGHERY, G.J. 2008a. A New Species of *Lomandra* (Lomandraceae) from the Whicher Range, Western Australia. *Western Australian Naturalist* 26: 16–20.

KEIGHERY, G.J. 2008b. A New Subspecies of *Loxocarya striata* (Restionaceae) from the Whicher Range. *Western Australian Naturalist* 26: 139–145.

KEIGHERY, G.J., KEIGHERY, B.J. and GIBSON, N. 2008. Floristics of the Whicher Range 1: Flora and Vegetation of Dardanup Forest Block. *Western Australian Naturalist* 26: 42–66.

KEIGHERY, B.J., KEIGHERY, G.J., WEBB, A., LONGMAN, V., and GRIFFIN, E.A. 2008. A Floristic Survey of the Whicher Scarp. Department of Environment and Conservation, Kensington.

OLDE, P. and MARRIOTT, N. 1995. *The Grevillea Book*, Vol. 2. Kangaroo Press, Kenthurst, New South Wales.

THACKWAY, R. and CRESSWELL, I.D. 1995. *An interim biogeographic regionalisation for Australia*, version 4. (Australian Nature Conservation Agency: Canberra).

TILLE, P. and LANTZKE, N. 1990. *The Busselton-Margaret River land capability study*. Western Australian Department of Agriculture. Land Resources Series No. 5.

WHEELER, J., MARCHANT, N. and LEWINGTON, M. 2002. *Flora of the South West*, Vol 2. University of Western Australia Press, Nedlands.